

REMARKS

Claims 1, 4-8, 11-14, 29, and 31-40 are all the claims pending in the application. Claims 1, 4-8, 11-14, 29, and 31-37, stand rejected on prior art grounds. Claims 38-40 have been added. Applicants respectfully traverse these rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1, 4-8, 11-14, 29, and 31-37, stand rejected under 35 U.S.C. §102(b) as being anticipated by Miyazaki (U.S. Publication No. 2002/0171152). Applicants respectfully traverse these rejections based on the following discussion.

The claimed invention provides an integrated circuit structure having a compressible film surrounding sides of solder connectors and an insulating material surrounding the compressible film. In the rejection, the Office Action argues that because the insulator 17 of Miyazaki and the insulator 62 of the claimed invention both contain polyimide, then both items must have the same physical properties. However, as more fully described below, the insulator 17 of Miyazaki is not compressible. In addition, Miyazaki fails to teach an insulator AND a compressible film, wherein the compressible film is distinct from the insulator. Therefore, as explained in greater detail below, Applicants respectfully submit that the prior art of record does not teach or suggest the claimed invention.

The Office Action argues that Miyazaki discloses an integrated circuit structure comprising a compressible film surrounding sides of solder connectors (Office Action, p.

2, para. 2). Such features are defined in independent claims 1, 8, and 29 using similar language.

More specifically, the Office Action argues that the insulating layer 17 of Miyazaki could include a polyimide-based resin. Further, the Office Action argues that because the compressible film of the claimed invention could include a polyimide foam, then the insulating layer 17 of Miyazaki and the compressible film of the claimed invention “have the same properties”.

Applicants respectfully disagree with such a conclusion. The fact that two materials may share a common substance does not mean that the materials have the same physical properties. For example, both fruit juice and gelatin comprise water and sugar; however, fruit juice is liquid at room temperature and gelatin is solid at room temperature.

Applicants submit that nothing within Miyazaki teaches that the insulating layer 17 is compressible. A word search for the term “compress” resulted in only three results. Specifically, paragraphs 72, 93, and 133 of Miyazaki disclose that “the solder layers 23 are melted and solidified by a heating/compressing process or a reflow process”. However, nothing within Miyazaki discloses that the insulating layer 17 has compressible properties. Rather, Miyazaki merely discloses that the solder layers 23 are subjected to a process that comprises heating and compressing.

Accordingly, Applicants submit that Miyazaki does not disclose a compressible film surrounding sides of solder connectors. Instead, Miyazaki only discloses an insulating layer. Miyazaki does not disclose that the insulating layer is compressible. Therefore, it is Applicants’ position that Miyazaki fails to teach the claimed features of “a

compressible film ... surrounding sides of said solder connectors” as defined by independent claims 1 and 29, and “a compressible film surrounding sides of said lead-free connectors” as defined by independent claim 8.

In addition, Applicants submit that Miyazaki only discloses one structure (i.e., the insulating layer 17) that surrounds the solder bumps 14, whereas the claimed invention discloses two structures (i.e., the insulating underfill 62 AND the compressible material 20) that surrounds the connectors 12.

The claimed insulating material and compressible material are claimed separately and are therefore separate structures. As illustrated in FIG. 6 of Applicants’ disclosure, the compressible film 20 surrounds a connector 12. In addition, the insulating underfill 62, which is separate and distinct from the compressible film 20, also surrounds the connector 12. Independent claims 1 and 29 define “a compressible film ... and an insulating material surrounding said compressible film”; and, independent claim 8 defines “a compressible film ... and an insulating underfill surrounding said compressible film”. Moreover, dependent claims 38 and 40 define that “said compressible film is distinct from said insulating material”; and, dependent claim 39 defines that “said compressible film is distinct from said insulating underfill”.

To the contrary, Miyazaki does not disclose two separate and distinct structures that surround the solder bumps 14. Instead, Miyazaki only discloses a single structure 17 that surrounds the solder bumps 14, wherein the structure 17 is identified as an insulator. Therefore, the insulator 17 only corresponds to the claimed insulator and there is no structure in Miyazaki that corresponds to the claimed compressible material.

Therefore, it is Applicants' position that Miyazaki fails to disclose the claimed features of "a compressible film ... and an insulating material surrounding said compressible film" as defined by independent claims 1 and 29, and/or "a compressible film ... and an insulating underfill surrounding said compressible film" as defined by independent claim 8. Miyazaki also fails to disclose the claimed features "wherein said compressible film is distinct from said insulating material" as defined by dependent claims 38 and 40; and/or "wherein said compressible film is distinct from said insulating underfill" as defined by dependent claim 39.

Therefore, it is Applicants' position that Miyazaki does not disclose many features defined by independent claims 1, 8, and 29, and that such claims are patentable over the prior art of record. Further, it is Applicants' position that dependent claims 4-7, 11-14, and 31-40 are similarly patentable, not only because of their dependency from a patentable independent claims, but also because of the additional features of the invention they defined. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

II. Formal Matters and Conclusion

In view of the foregoing, Applicants submit that claims 1, 4-8, 11-14, 29, and 31-40, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone

number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0458.

Respectfully submitted,

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